VASCULAR FLORA OF THE OLD MULKEY MEETING HOUSE STATE HISTORIC SITE, MONROE COUNTY, KENTUCKY

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ABSTRACT

A floristic study was conducted of the vascular plants of Old Mulkey Meeting House State Historic Site, the oldest wooden meeting house west of the Appalachian Mountains, in Monroe County, Kentucky, during the 2008 and 2009 growing seasons. Old Mulkey, built in 1797, gives its name to the only state park in Kentucky to perpetuate the name and commemorate the history of a church. Vascular plants from the 32.0 hectare site consisted of 415 species in 266 genera from 105 families. Taxonomic distribution included 10 species of Polypodiophyta, five species of Pinophyta, and 400 species of Magnoliophyta (301 Magnoliopsida, 99 Liliopsida). Eighty-three (20.00%) were naturalized or introduced exotics with 43 (51.81%) invasive plant pest species. A total of 319 species (76.87%) were Monroe County distribution records. The species richness value was +1.03. Plant communities include predominantly mesophytic and oak-hickory forests and culturally disturbed areas.

Key Words: vascular plants, invasive plants, plant communities, oak-hickory forest, mesophytic forest, Old Mulkey Meeting House State Historic Site, Monroe County, Kentucky, Kentucky State Parks

RESUMEN

Se hizo un estudio florístico de las plantas vasculares del lugar histórico Old Mulkey Meeting House—la casa de reuniones religiosas más antigua de madera construida al oeste de los montes Apalaches—en el condado de Monroe del estado de Kentucky durante las temporadas de crecimiento de los años 2008 y 2009. Old Mulkey, construida en 1797, da su nombre al único parque estatal de Kentucky que conmemora y perpetúa el nombre de una iglesia. Las plantas vasculares del terreno de 32 hectáreas pertenecen a 415 especies de 266 géneros y 105 familias. La distribución taxonómica comprendió 10 especies de Polypodiophyta, cinco especies de Pinophyta y 400 especies de Magnoliophyta (301 Magnoliopsida, 99 Liliopsida). Ochenta y tres (20.00%) fueron naturalizadas o exóticas introducidas con 43 (51.81%) especies de plantas invasoras nocivas. Un total de 319 especies (76.87%) fueron oficialmente documentadas para el condado de Monroe. El valor de riqueza de las especies fue +1.03. Las comunidades de plantas que predominan incluyen bosques mesofíticos de roble-nogal y lugares perturbados por humanos.

Palabras Claves: plantas vasculares, plantas invasivas, las comunidades de plantas, bosque de roble-nogal americano, bosque mesofítico, lugar histórico estatal Old Mulkey Meeting House, condado de Monroe, estado de Kentucky, parques estatales de Kentucky

INTRODUCTION

Old Mulkey Meeting House State Historic Site, hereafter Old Mulkey, is the only state park in Kentucky to venerate the name and commemorate the history of a church. The historic site was designated to preserve the Old Mulkey Meeting House, the oldest wooden building of its kind in Kentucky and the oldest meeting house west of the Appalachians. Old Mulkey is located 0.6 km from the city limits of Tompkinsville adjoining KY 1446 (Old Mulkey Road) in south-central Monroe County, Kentucky, at latitude 36.679722°N and longitude 85.705556°W. Monroe County is a southernmost Kentucky county bordering Clay County, Tennessee (Fig. 1). Old Mulkey became a part of the Kentucky State Parks system on November 8, 1931, as the Old Mulkey Meeting House State Shrine (Kentucky State Parks 2009).

Old Mulkey is comprised of 32.0 hectares in the unglaciated Eastern Highland Rim of the Interior Low Plateau based on Keys et al. (1995) and Woods et al. (2002). Old Mulkey encompasses a continuum of natural forest vegetation, woodlands, and anthropogenically disturbed (semi-natural and modified) vegeta-

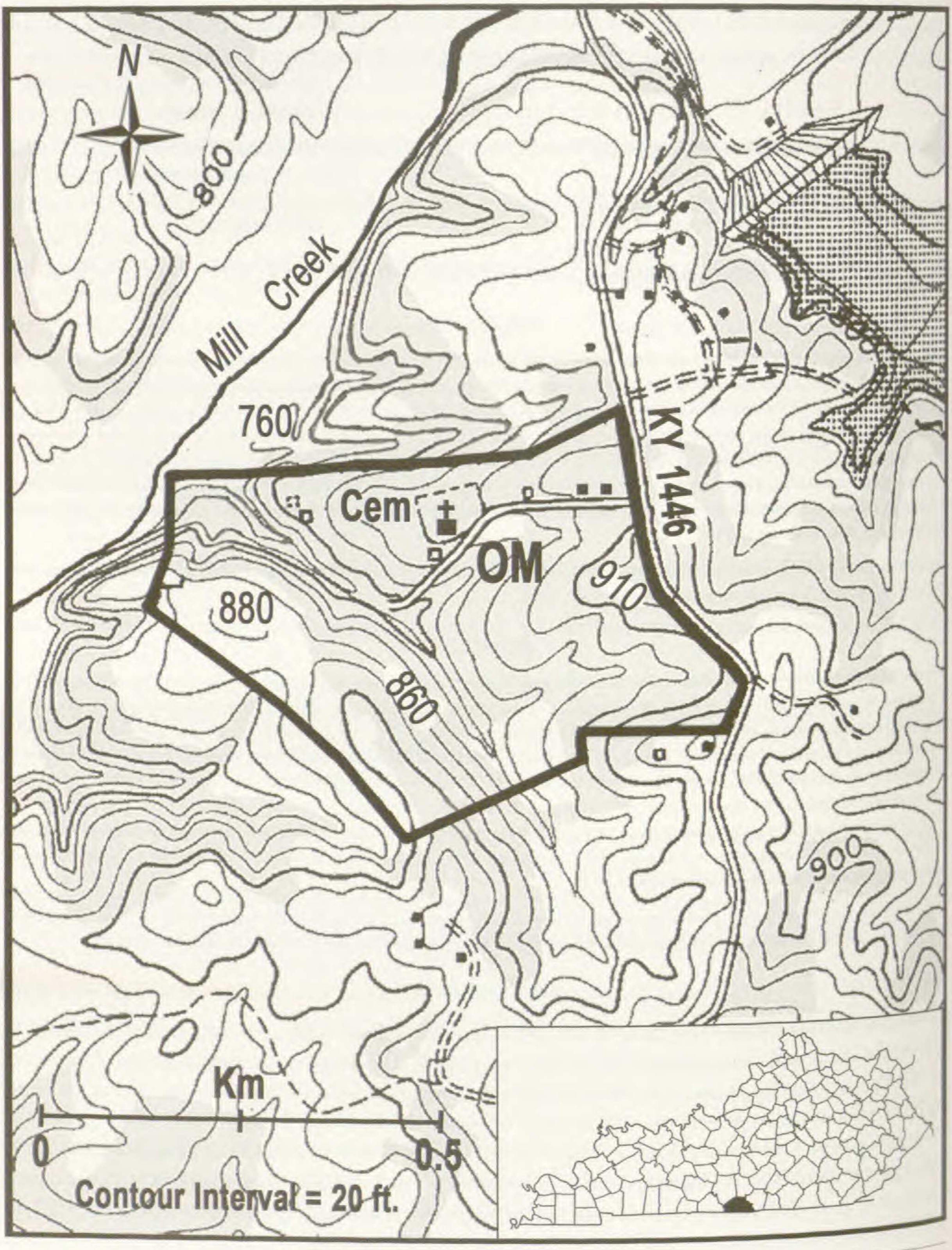

Fig. 1. Old Mulkey Meeting House State Historic Site, 0.6 km southwest of Tompkinsville city limits, Monroe County, Kentucky. Map adapted from Tompkinsville Topographic Quadrangle (GQ-937) Kentucky, 7-5 minute series (1:24,000 scale), U.S Geological Survey, 1954. Inset of Monroe County within Kentucky.

tion. The terrain consists of upland ridges, rolling to steep hillsides, rock outcrops, drainage gullies, toe slopes, a narrow ravine, and an alluvial terrace. The topography then transitions to near level slopes with an admixture of forest woodlands bordering a large, open grassy yard. Elevations range from 230 m at the junction of the Mill Creek floodplain to 274 m on an upland area adjoining KY 1446. The historic site features the Old Mulkey Meeting House, a Revolutionary War patriot and pioneer cemetery, a Visitor Center, an Old Visitor Center, a maintenance building, a picnic and playground area, and a large mowed yard primarily of graminoid herbaceous species.

A descriptive floristic study was undertaken of the Old Mulkey Meeting House State Historic Site during the 2008–2009 growing seasons. An extensive herbarium search (BEREA, EKY, KY, WKU) revealed a paucity of Monroe County plant specimens from a few incidental collections. Our objectives were to: 1) document the vascular plants with representative voucher specimens, 2) describe the plant communities present with characteristic species, 3) determine Monroe County distribution records, 4) discuss geology, soils, and climate of the physical site, 5) prepare an annotated species list with county records, origin (native or exotic), invasive plant pest status, vernacular name, plant communities, relative abundance, and collection number(s) for each taxon, and 6) establish a baseline inventory for further botanical study in Monroe County.

THE STUDY SITE

History

Old Mulkey Meeting House represents both the Pioneer Era and the Great Religious Revival Era in the development of Kentucky history in the early 1800s. Philip Mulkey led a small group of Baptist settlers to Kentucky in 1773 from what is now North Carolina and South Carolina. The congregation established the Mill Creek Baptist Church in 1797 at the current site of the Old Mulkey Meeting House. This group was a part of the Religious Restoration Movement, known as "The First Great Awakening," that swept the south after the Revolutionary War partly to declare separation from the established church in England. John Mulkey, brother to Philip, became the first minister of the church in 1797 (Rogers 1960).

On April 15, 1804, the growing congregation commissioned the building of a new meeting house church. It measured 15.24 m × 9.14 m and was built with 12 corners representing the 12 Apostles and three doors symbolic of the Holy Trinity. It had five windows, a puncheon floor, clapboard shutters, hand-driven shingles, chinked and daubed walls, and split-log peg-leg benches (Kentucky State Parks 2009).

On November 18, 1809, the congregation of 200 members split into two factions over differences in John Mulkey's religious doctrine. After this schism, 150 members remained with John Mulkey and retained the church building, which then became known as "Old Mulkey" or "Old Mulkey Meeting House." The 50 remaining members of the congregation left and established a new Baptist church in Tompkinsville (Rogers 1960). John Mulkey was a well-respected preacher in the Baptist Association for 53 years and delivered over 10,000 sermons before he died at Old Mulkey on December 13, 1844 (Rogers 1960). After Mulkey's death, religious services continued to be held at Old Mulkey until 1856, after which the existing congregation disbanded and its former members moved to the Church of Christ in Tompkinsville. Old Mulkey was abandoned following the dissolution of the church (Kentucky State Parks 2009).

In the 1870s, Old Mulkey Meeting House was renovated and was used for various religious meetings and events until 1910, when it was again abandoned. In 1925, the Honorable Joe H. Eagle, U.S. Representative and Monroe County native, and Reverend William Thomas of Tompkinsville initiated a successful campaign to rebuild and restore Old Mulkey to its 1804 form (Fig. 2). Through their efforts and others, the Old Mulkey Meeting House and cemetery were designated a Kentucky state shrine by the Kentucky State Park Commission on November 8, 1931 (Kentucky State Parks 2009).

The cemetery at Old Mulkey is the final resting place of 76 Old Mulkey pioneer parishioners, many of whom were Revolutionary War soldiers. Among those gravestone markers are Hannah Boone (1746–1828) (Fig. 2), Lieutenant Nathan Breed, James Chism, John Giss, Joseph Gist, William Howard, Obadiah Howard, Philip Mulkey, John Newton Mulkey (son of John Mulkey), Edward Pediford, General Samuel Wilson

Fig. 2. Old Mulkey Meeting House and Cemetery, with markers of Daniel Boone's sister Hannah Boone and brother Squire Boone.

(donator of the Old Mulkey land site), and four children of Isaac Jackson, cousin of Confederate General Stonewall Jackson (Kentucky State Parks 2009).

Forest Vegetation

Küchler (1964) maps the potential vegetation in this southern part of Kentucky as Oak-Hickory Forest. Oak-Hickory Forest is the predominant forest vegetation in upland drier areas in Monroe County, and Mixed Mesophytic Forest is an important forest type in mesic ravines near the Cumberland River of the Interior Low Plateau (Woods et al. 2002). Braun (1950) classified the vegetation in the Mississippian Low Plateau Region with predominately shale and limestone bedrock in the vicinity of Old Mulkey, as belonging to the Western Mesophytic Forest, a mosaic of Oak-Hickory Forest to the west and Mixed Mesophytic Forest to the east. At Old Mulkey, Mesophytic Forest is the principal forest vegetation type. The number of canopy species, high herbaceous diversity, and leaf litter and duff accentuate the mesophytic aspects of the forest. It is present on mesic upland hillside slopes, midslopes, lower slopes, drainage gullies, a ravine, and a floodplain terrace. Oak-Hickory Forest is found on the extensive xeric upland ridges, rolling hillsides, outcrops, gullies, and among altered woodland stands.

Geology

Quaternary alluvium of sand, pebbles, and gravels is present on the lower adjoining intermittent creek and spring-fed creek at the Mill Creek floodplain from 231 m to 237 m. Mississippian greenish-gray to gray to yellowish-gray shaly siltstones (green soapstones) of the Fort Payne Formation are found on hillside slopes and the spring creek ravine near Mill Creek and upper elevations from 237 m to 256 m (Witkind 1971).

Mississippian shaly siltstones, greenish-gray to light gray weathering to yellowish-gray of the Salem and Warsaw Limestones are present on gentle side slopes and hillsides to the upper elevations from 256 m to 252 m (Witkind 1971). These calcareous shales are not distinguishable from the shaly siltstone beds of the underlying Fort Payne Formation and often form rock outcrops. From 252 m to 275 m, Salem and Warsaw Limestones underlie the upland areas of Old Mulkey to the eastern boundary with KY 1446. Exposed limestone outcrops consist of medium to dark gray, thick-bedded, fine to medium carbonate grains with fossil fragments and tightly cemented oolites (Witkind 1971).

Soils

The soils of the Garmon Association form an almost continuous band from the spring-fed ravine to the steep 20–60% west-trending hillside slope adjacent to Mill Creek. Garmon Shaly Silt Loams on 12–20% slopes lie along the ravine slopes and upper hillside slopes near the northern boundary (Mitchell & Latham 1982). These residual soils are medium acidic to neutral in reaction, moderately deep to 100–152 cm deep, well-drained, and are composed of calcareous shaly limestone bedrock. Lowell Silt Loams of 2–6% slopes, are found around the old cemetery and picnic area and also lie on small upland benches and ridges on 6–12% slopes south of the Visitor's Center. These interbedded limestone, shale, and siltstone residual soils are strongly acid to neutral in reaction, well-drained, gently sloping and are less than 122–152 cm deep to bedrock (Mitchell & Latham 1982). Waynesboro Loams of 6–12% slopes and 12–20% slopes are present in much of the uplands around the Visitor's Center and along the KY 1446 roadside shoulders. These residual soils are strongly acid or very strongly acid in reaction, well-drained, and 61–203 cm deep on moderately steep upland slopes. Waynesboro Clay Loams of 6–12% to 12–30% slopes lie on hillside slopes at the southeastern boundary area. These residual, well-drained soils are strongly acidic to very strongly acidic in reaction and 96–203 cm deep (Mitchell & Latham 1982).

Climate

The continental climate of south-central Kentucky is temperate, humid mesothermal with little water deficiency, warm to hot summers, and mild to cold winters (Trewartha & Horn 1980). Kentucky climatic data (1971–2000) are from the weather station at Summer Shade, Metcalfe County, ca. 35 km northwest of the Old Mulkey site. Mean annual precipitation is 128.0 cm with March the highest at 13.0 cm and October the lowest at 8.1 cm, and includes a mean annual snowfall of 27.7 cm with 20.8 cm in January and February. Mean annual temperature is 13.8°C with January the coldest month at 1.4°C and July the warmest month at 24.8°C. Median length of the growing season is 183 days with April 17 the median last spring frost and October 18 the median first fall frost (Kentucky Climate Center 2009).

METHODS

Vascular plants were collected from 17 all day field trips during the growing seasons of 2008 (10 trips) and 2009 (7 trips). The master voucher specimen set for this floristic study is deposited at the Berea College Herbarium (BEREA). Vernacular names are derived from Chester et al. (2009) or USDA, NRCS (2010). The symbols for origin of taxa are from Thompson (2008). Nomenclature of taxa and classification of families is based on Jones (2005), except in the case of a few woody plants where the nomenclature follows Clark and Weckman (2008). Jones (2005) and Gleason and Cronquist (1991) were used in identification of taxa and for determining native or exotic status. Monroe County records are based on Campbell and Medley (2006), Clark and Weckman (2008), and USDA, NRCS (2009). The relative abundance scale in the annotated list is based on Thompson (2007). A single relative abundance or occurrence value (rare, scarce, infrequent, occasional, frequent, abundant) is assigned for each taxon and is inclusive for all plant communities. Invasive pest plant status (severe threat, significant threat, lesser threat) is from the Kentucky Exotic Plant Pest Council list (KY-EPPC 2009). Relative species richness was derived from the species-area equation ($S = 272A^{0.113}$) of Wade and Thompson (1991). A predicted species richness (S) may be calculated by inserting a known value in hectares (A) and a deviation value calculated from actual number of species divided by predicted number of species.

A plant community is defined as an assemblage of associated species with a definite floristic composition under relatively consistent habitat conditions with a uniform physiognomy (Thilenius 1968). Our floristic plant communities are based on Thilenius's concept: the structural physiognomy, species composition of the characteristic or diagnostic canopy, subcanopy, and herbaceous species, and habitat diversity (combination of physiographic terrain, soils, geology, and topographic-moisture relief).

RESULTS AND DISCUSSION

Taxonomic Summary

Vascular flora of Old Mulkey consists of 415 species in 266 genera from 105 families (Table 1). In several cases, an infraspecific category, i.e., subspecies or variety, is given for a species, but in no instance is there more than one infraspecific category per species. Taxonomic distribution includes 10 species of Polypodiophyta, five species of Pinophyta, and 400 species of Magnoliophyta (301 Magnoliopsida, 99 Liliopsida). Eighty-three (20.00%) are naturalized or introduced exotics (Table 1). Ninety-six (23.13%) were woody and 319 (76.87%) were herbaceous species. A total of 319 species (76.87%) are Monroe County distribution records, which is indicative of an inadequately collected county. No rare state-listed taxa were encountered based on KSNPC (2009). The families containing the most species are the Asteraceae (51), Poaceae (46), Fabaceae (25), Cyperaceae (24), Rosaceae (17), Scrophulariaceae (11), and Lamiaceae (10). *Carex* is the largest genus with 21 taxa.

The presence of the recently-described, facultative calciphile, *Carex superata*, is significant. This rare sedge is growing on the lower slope of a small mesic ravine in Garmon calcareous shaly silt loam soils adjacent to a spring-fed creek at Old Mulkey. In Kentucky, this taxon is near its northern range limit; it has only been documented from three counties bordering Tennessee; Cumberland, Monroe, and Todd Counties (Naczi et al. 1998).

Species Richness

Using the species-area curve for floras in the Mixed and Western Mesophytic Forest Regions (Wade & Thompson 1991), the predicted species richness is 402 species for a 32.0-ha site. The actual species richness at Old Mulkey is 415 species. The relative species richness from the actual species number divided by the predicted species gave a deviation value of +1.03%. This species richness value is indicative of an ample survey for the Old Mulkey study site.

Invasive Species

At Old Mulkey, 43 (51.80%) of the naturalized species are invasive plant pests based on the Kentucky Exotic Pest Plant Council list (KY-EPPC 2009). Eighteen invasive species are classified as "severe threat" plants. The worst woody invasive, *Vinca minor*, forms extensive ground cover over approximately 4.0 ha of the Mesophytic Forest community. *Lonicera japonica* is found throughout both Mesophytic Forest and Oak-Hickory Forest. *Pueraria montana* var. *lobata* is entangled in localized areas of the Oak-Hickory Forest. Among the "severe threat" species, *Ailanthus altissima*, *Celastrus orbiculatus*, *Euonymus alatus*, *Ligustrum sinense*, *Lonicera maackii*, and *Rosa multiflora*, are growing in a small restricted area of Oak-Hickory Forest and forest woodland ecotones east of the Visitor's Center and adjacent to KY 1446. Thirteen "significant threat" invasives and 12 "lesser threat" invasives are present within the boundaries of Old Mulkey. The majority of the invasives are widespread herbaceous species in culturally disturbed habitats, e.g., mowed yard of the historic site and the KY 1446 roadside shoulders contiguous with the eastern boundary of Old Mulkey in Oak-Hickory Forest. Two introduced exotic trees, *Koelreuteria paniculata* and *Pyrus calleryana*, are planted at the Old Visitor's Center.

The consequences of not controlling woody naturalized invasives will ultimately continue to impact the native flora, vegetation, and habitats at Old Mulkey Meeting House State Historic Site and its environs. Invasive plant species have the deleterious effects of displacing and out-competing native species, changing the pattern of progressive plant succession, influencing decomposition processes, and disrupting nutrient cycles (Poindexter & Thompson 2009). Among the "severe threat" taxa, *Celastrus orbiculatus*, *Euonymus alatus*,

TABLE 1. Taxonomic distribution of vascular plants of the Old Mulkey Meeting House, Kentucky.

Division	Family	Genera	Species	Native	Exotic	Species composition (%)
Polypodiophyta	5	8	10	10	0	2.41
Pinophyta	2	3	5	5	0	1.20
Magnoliophyta	98	255	400	317	83	96.39
Liliopsida	17	54	99	78	21	23.86
Magnoliopsida	81	201	301	239	62	72.53
Total:	105	266	415	332	83	100.00

Lonicera maackii, and *Vinca minor*, have extended their geographical range based on the maps of Clark and Weckman (2008). All severe threat woody invasive species, except for *Lonicera japonica* and *Vinca minor*, could be controlled because of the small areas of establishment at the current time. Treatments for effectively removing and destroying aggressive invasive woody pest plants at Old Mulkey are highly recommended through foliar application, hack and spray, and/or cut/paint stem-stump applications of herbicides (e.g., triclopyr with 2.4-D and glyphosate).

Plant Communities

Plant communities are described with physical features and characteristic species in the predominant Mesophytic Forest and Oak-Hickory Forest types. Plant communities are further discussed within these two major forest community types in context including ecotonal forest woodland border, intermittent creek drainage area, and culturally disturbed areas. The anthropogenically derived plant community includes the historic site mowed yard, cemetery, playground, picnic area, and the roadside shoulder and ditch of asphalt-paved KY 1446 (Old Mulkey Road).

Mesophytic Forest.—The Mesophytic Forest community encompasses the largest part of the forested Old Mulkey site, and it forms a mosaic throughout with the Oak-Hickory Forest community on upland hillside slopes, midslopes, lower slopes, side slopes, and drainage gullies on the central to western and northern boundaries. Mesophytic Forest continues through a mesic west-facing ravine with a natural spring-fed creek, ravine slopes, and toe slopes, and it ends in an alluvial floodplain terrace near the junction with Mill Creek at the extreme western boundary. The closed-canopy is comprised primarily of very shade tolerant to partially shade tolerant trees. Diagnostic canopy trees in general order of abundance are *Fagus grandifolia*, *Acer saccharum*, *Quercus alba*, *Q. rubra*, *Liriodendron tulipifera*, *Carya cordiformis*, *Aesculus flava*, *Fraxinus americana*, *Q. muhlenbergii*, *Morus rubra*, *Nyssa sylvatica*, *Ulmus rubra*, and *Tilia americana*. In species composition, this forest community is comparable to a combination of the *Fagus grandifolia-Acer saccharum-(Liriodendron tulipifera)* Forest Alliance and the *Fagus grandifolia-Quercus rubra-Quercus alba* Forest Alliance of the Land Between The Lakes National Recreation Area (NatureServe 2004). Evans (1991) characterizes this forest type as the Acidic Mesophytic Forest. Several large mesophytic trees, *Acer saccharum*, *Fagus grandifolia*, *Liriodendron tulipifera*, *Quercus alba*, *Q. falcata*, *Q. muhlenbergii*, and *Q. rubra*, are 0.70 m dbh or greater. Trees measuring over 1.0 m dbh are *Fagus grandifolia* and *Quercus alba*.

A well developed tall-shrub layer and woody vines are present particularly within the spring-fed ravine. Characteristic taxa are *Asimina triloba*, *Bignonia capreolata*, *Corylus americana*, *Hydrangea arborescens*, *Ilex opaca*, *Lindera benzoin*, *Menispermum canadense*, *Sambucus canadensis*, *Smilax hispida*, *Staphylea trifolia*, *Viburnum acerifolium*, and *Vitis rotundifolia*. The most abundant invasive woody plant, *Vinca minor*, forms extensive ground cover in several upland and lowland mesic areas.

In the Mesophytic Forest community, the species richness increases with the presence of several spring ephemeral species especially within the spring-fed ravine. Indicator perennials include *Arisaema triphyllum*, *Asarum canadense*, *Carex amphibola*, *C. cumberlandensis*, *C. kraliana*, *C. oligocarpa*, *C. rosea*, *Erythronium americanum*, *Galium triflorum*, *Iris cristata*, *Maianthemum racemosum*, *Pachysandra procumbens*, *Poa autumnalis*,

P. sylvestris, *Polygonatum pubescens*, *Ranunculus recurvatus*, *Sanguinaria canadensis*, *Sanicula trifoliata*, *Sedum ternatum*, *Smilax ecirrhata*, and *Trillium grandiflorum*. Holoparasitic herbs, *Conopholis americana* on *Quercus rubra*, and widespread *Epifagus virginiana* on *Fagus grandifolia*, are present on middle to upper slopes. Mesic ferns present in the shaly calcareous ravine are *Adiantum pedatum*, *Botrychium virginianum*, *Cystopteris protrusa*, *Diplazium pycnocarpon*, *Phegopteris hexagonoptera*, and *Polystichum acrostichoides*.

Herbaceous species of the shale-layered ravine bottom, lower slopes, and toe slopes, include *Boehmeria cylindrica*, *Campanulastum americanum*, *Carex albursina*, *C. laxiflora* var. *laxiflora*, *C. superata*, *Cryptotaenia canadensis*, *Erigenia bulbosa*, *Glyceria striata*, *Hydrophyllum macrophyllum*, *Impatiens capensis*, *I. pallida*, *Laportea canadensis*, *Leersia virginica*, *Osmorhiza claytonii*, *Phlox divaricata*, *Pilea pumila*, *Stellaria pubera*, and *Viola striata*. Naturalized annual herbs invading throughout mesic areas are *Microstegium vimineum* and *Polygonum caespitosum* var. *longisetum*.

An alluvial floodplain terrace from the spring-fed creek of the Mesophytic Forest community leads westward to Mill Creek. Riparian trees at this site are *Acer negundo*, *Carpinus caroliniana*, *Fraxinus pennsylvanica*, *Platanus occidentalis*, and *Salix nigra*. *Vinca minor* also extensively covers much of the toe slope and floodplain terrace. Canopy trees, shrubs, and vines on this floodplain terrace are those species of the Mesophytic Forest as are the typical native spring, summer, and fall perennials.

Intermittent Creek Drainage Community.—At the northwestern boundary of the Mesophytic Forest community, an intermittent seasonal creek with a gravel and cobble bed adjoins a shaly spring-fed creek. Various weedy native and exotic species have colonized the gravel bottom, embankments, and northwest to western-trending floodplain. *Cuscuta pentagona* is a holoparasite on *Ambrosia artemisiifolia*, *A. trifida*, *Bidens frondosa*, *Lespedeza cuneata*, and *Polygonum caespitosum* var. *longisetum*. Among other herbaceous taxa in the creek drainage are *Amphicarpaea bracteata*, *Desmodium glabellum*, *Impatiens capensis*, *Iva annua*, *Physalis longifolia*, *Polygonum punctatum*, and *Xanthium strumarium* var. *glabratum*. Taxa of lower floodplain thickets include *Ageratina altissima*, *Circaea lutetiana* subsp. *canadensis*, *Clematis virginiana*, *Collinsonia canadensis*, *Coreopsis triloba*, *Lactuca floridana*, *Rubus occidentalis*, *Solidago gigantea*, *Verbena urticifolia*, and *Verbesina occidentalis*.

Oak-Hickory Forest.—The vegetation of upland, dry rolling hills, slopes, and gullies is predominantly a dry-mesic Oak-Hickory Forest community on the eastern and northeastern boundaries. A mixture of intermediate shade tolerant to shade intolerant oaks with a hickory component along with several Mesophytic species best describes this forest community. It is comparable to the *Quercus alba*-(*Quercus rubra*, *Carya* spp.) Forest Alliance of the Land Between The Lakes National Recreation Area (NatureServe 2004). The Oak-Hickory Forest community blends with the Mesophytic Forest community on uplands throughout and borders the culturally disturbed community as ecotonal forest-woodland edges. Diagnostic hardwood canopy trees in general order of abundance are *Quercus alba*, *Fagus grandifolia*, *Acer saccharum*, *Q. rubra*, *Q. stellata*, *Q. velutina*, *Q. falcata*, *Carya ovata*, *C. tomentosa*, *C. glabra*, *Acer rubrum*, *Fraxinus americana*, *Nyssa sylvatica*, *Diospyros virginiana*, *Sassafras albidum*, *Ulmus alata*, and *Prunus serotina*. Scattered coniferous stands of *Juniperus virginiana* and a plantation of *Pinus taeda* and *P. strobus* are intermixed among taxa of the Oak-Hickory Forest community on the north-trending upper to middle slope at the southern boundary. Mid-to-late secondary succession stages are occurring as intermediate shade-tolerant hardwoods volunteer throughout the understory. Subcanopy trees, tall-shrubs, and vines include *Campsis radicans*, *Cercis canadensis*, *Cornus florida*, *Euonymus americanus*, *Frangula caroliniana*, *Ostrya virginiana*, *Parthenocissus quinquefolia*, *Smilax rotundifolia*, *Symphoricarpos orbiculatus*, *Viburnum rufidulum*, *Vitis aestivalis*, *V. rotundifolia*, and the ubiquitous *Toxicodendron radicans*. The major woody invasive species are *Lonicera japonica* and *Pueraria montana* var. *lobata*.

Several seasonal herbaceous species are found in the dry-mesic Oak-Hickory Forest community on ridges, hillsides, limestone outcrops, and gullies; however, species richness is not nearly as significant as in the Mesophytic Forest community. Characteristic perennial taxa include *Arisaema triphyllum*, *Brachyelytrum erectum*, *Carex blanda*, *C. digitatus* var. *digitalis*, *C. oligocarpa*, *C. planispicata*, *C. willdenowii*, *Circaea lutetiana* subsp. *canadensis*, *Claytonia virginica*, *Conoclinium coelestinum*, *Cynoglossum virginianum*, *Dentaria multifida*,

Desmodium nudiflorum, *Dichanthelium acuminatum*, *D. boscii*, *Galium circaezans*, *G. pilosum*, *Goodyera pubescens*, *Oxalis violacea*, *Phryma leptostachya*, *Podophyllum peltatum*, *Polygonum virginianum*, *Sanicula canadensis*, *Scutellaria elliptica*, *Solidago caesia*, *Tipularia discolor*, and *Viola palmata*. Ferns include *Asplenium platyneuron*, *Botrychium dissectum*, *B. virginianum*, *Phegopteris hexagonoptera*, *Polystichum acrostichoides*, and *Woodsia obtusa*.

A unique stand of Oak-Hickory Forest is found on a steep, west-trending shaly hillside above Mill Creek at the southwestern boundary. Dominant canopy trees and shrubs include those characteristic of the Oak-Hickory Forest community. Some indicator species found only on the thin soil, calcareous shaly outcrops at the upper and midslope are *Carex communis*, *Coreopsis major*, *Dodecatheon meadia*, *Heuchera americana*, *Porteranthus stipulatus*, *Saxifraga virginiensis*, and *Solidago sphacelata*. Other characteristic species include *Agrostis perennans*, *Arabis laevigata*, *Asplenium platyneuron*, *Carex albicans*, *Houstonia purpurea*, *Paronychia canadensis*, *Solidago caesia*, and *Sphenopholis nitida*. The exposed soils of the lower slope are colonized by *Cystopteris bulbifera*, *Eurybia macrophylla*, *Hydrangea arborescens*, *Lindera benzoin*, and *Sambucus canadensis*.

Ecotonal Woodland Border.—A forest ecotonal woodland border of Oak-Hickory Forest and Mesophytic Forest surrounds the Culturally Disturbed community of the historic site. The flora consists of an admixture of seral woody and herbaceous species from the Oak-Hickory Forest, Mesophytic Forest, and the Culturally Disturbed yard. This secondary successional woodland community has an assemblage of shade-intolerant to very shade-intolerant woody species. *Pinus virginiana*, *Rhus copallina*, *Robinia pseudoacacia*, *Rosa carolina*, *Rubus argutus*, *Smilax bona-nox*, *S. glauca*, *Toxicodendron radicans*, *Ulmus alata*, and *Vaccinium corymbosum*, are present along with the saplings of several intermediate to shade-intolerant species of *Carya* and *Quercus*. Suffrutescent plants include *Chimaphila maculata* and *Hypericum stragulum*. Herbaceous species occupying this community include *Agrimonia rostellata*, *Antennaria plantaginifolia*, *Carex albicans*, *Desmodium glabellum*, *Dichanthelium commutatum*, *D. laxiflorum*, *Elephantopus carolinianus*, *Erigeron annuus*, *E. philadelphicus*, *Galium aparine*, *Hypericum punctatum*, *Juncus tenuis*, *Luzula echinata*, *Oxalis violacea*, *Ruellia caroliniensis*, *Salvia lyrata*, *Scutellaria nervosa*, and *Viola sororia* var. *sororia*. The omnipresent *Lonicera japonica* and *Toxicodendron radicans* are interspersed along these ecotonal forest woodland edges among numerous other woody and herbaceous taxa.

A small open, xeric woodland border of Oak-Hickory Forest has a herbaceous floristic composition of several prairie species descriptive of a prairie-like barren. This mid-seral stage community is found on a south-trending hillside edge near the spring and southwest of the Old Mulkey Meeting House adjacent to the mowed yard. Characteristic perennial graminoids are *Andropogon virginicus* var. *virginicus*, *Carex hirsutella*, *Dichanthelium commutatum*, *D. laxiflorum*, *Elymus glabriflorus*, and *Tridens flavus*. Broad-leaved annual and perennial prairie-like forbs include *Asclepias tuberosa*, *Aureolaria virginica*, *Chamaecrista nictitans*, *Croton monanthogynus*, *Desmodium rotundifolium*, *Diodia teres*, *Erigeron strigosus*, *Euphorbia corollata*, *Hieracium gronovii*, *Krigia biflora*, *Lespedeza intermedia*, *L. procumbens*, *Manfreda virginica*, *Packera anonyma*, *Penstemon canescens*, *Solidago nemoralis*, *Spiranthes tuberosa*, and *Vernonia gigantea*.

The secondary succession prairie-like barren community has been severely influenced by continual mowing of all the perennial prairie species during the last two years. The mowing practice has continually been expanding the established mowed yard area into the woodland prairie-like border. This close mowing practice is effectively destroying the herbaceous prairie species by allowing encroachment of undesirable naturalized grasses from the yard and an increase in embankment erosion. It is recommended that this prairie-like barrens community should not be mowed at all to allow for natural plant succession.

Culturally Disturbed Community.—Anthropogenic affects on the flora diversity at the Old Mulkey site have occurred numerous times throughout its history. The Culturally Disturbed community includes plants occupying the extensive mowed yard, cemetery, playground and picnic area, asphalt and gravel roadsides, disturbed ground by a maintenance building, and the ruderal KY 1446 roadside shoulder and ditch contiguous with the ecotonal woodland border. Anthropogenic influences have created a weedy vegetation of many exotic and native annuals, some biennials, and several perennial herbs of the Asteraceae, Brassicaceae,

Caryophyllaceae, Fabaceae, Lamiaceae, Poaceae, and Polygonaceae, among other families. *Cynodon dactylon*, *Digitaria sanguinalis*, *Festuca arundinacea*, *Paspalum pubiflorum*, *Poa compressa*, and *P. pratensis* are the principal grasses in the mowed yard. Naturalized annual and perennial herbs include *Cardamine hirsuta*, *Cerastium vulgatum*, *Draba verna*, *Lespedeza stipulacea*, *L. striata*, *Medicago lupulina*, *Ornithogalum umbellatum*, *Poa annua*, *Sherardia arvensis*, *Stellaria media*, *Taraxacum officinale*, *Trifolium dubium*, *T. repens*, and *Veronica arvensis*. Native herbaceous taxa include *Ambrosia artemisiifolia*, *Carex cephalophora*, *C. glaucodea*, *Claytonia virginica*, *Dentaria multifida*, *Euphorbia maculata*, *E. nutans*, *Gamochaeta purpurea*, *Houstonia caerulea*, *Juncus tenuis*, *Krigia virginica*, *Luzula echinata*, *Oxalis stricta*, and *Viola sororia* var. *sororia*. The introduced *Narcissus pseudonarcissus* has persisted in the cemetery among an intense ground cover of *Vinca minor*. A few naturalized herbaceous plants only found at one ground-disturbed site around a maintenance building near the Visitor's Center are *Amaranthus spinosus*, *Anagallis arvensis* var. *arvensis*, *Cerastium glomeratum*, *Chenopodium album*, *Fatoua villosa*, *Lolium perenne* var. *aristatum*, *Mentha ×piperita*, *Secale cereale*, *Thlaspi alliaceum*, *Triticum aestivum*, and *Veronica polita*.

The KY 1446 mowed roadside shoulder and ditch are colonized by many of the same ruderal naturalized and native taxa present in the culturally disturbed yard. Characteristic forbs include *Allium vineale*, *Ambrosia artemisiifolia*, *Bidens bipinnata*, *Carduus nutans*, *Chrysanthemum leucanthemum*, *Cichorium intybus*, *Coronilla varia*, *Daucus carota*, *Lactuca saligna*, *Melilotus alba*, *Sonchus asper*, *Verbascum blattaria*, and *V. thapsus*. Grasses include *Andropogon virginicus* var. *virginicus*, *Bromus commutatus*, *Dactylis glomerata*, *Digitaria sanguinalis*, *Eleusine indica*, *Festuca arundinacea*, *Paspalum pubiflorum*, *Setaria pumila*, *Sorghum halepense*, and *Tridens flavus*.

ANNOTATED LIST OF SPECIES

The annotated list is arranged alphabetically by family, genus, and species in the Polypodiophyta, Pinophyta, and Magnoliophyta (Magnoliopsida and Liliopsida). Each taxon entry has a symbol code preceding the scientific name for Monroe County record (¤), naturalized exotic species (*), invasive plant species (**), introduced exotic species (‡), and native planted species (†). A vernacular name, plant community type(s), an inclusive relative abundance value, and representative voucher specimen number(s) ensue for every taxon. After the vernacular name, a code for plant communities follows: **OF** (Oak-Hickory Forest), **MF** (Mesophytic Forest), **WB** (Forest Woodland Ecotone Border), **IC** (Intermittent Creek Drainage), and **CD** (Culturally Disturbed Community). These communities are listed in sequence of importance for a characteristic species present in two or more communities.

A relative abundance value for each taxon from all plant communities is: **R** (Rare)—1–4 plants or colonies, very difficult to find in one or two locations; **S** (Scarce)—5–10 plants or colonies, difficult to find in a few locations; **I** (Infrequent)—11–30 plants or colonies, scattered in some locations; **O** (Occasional)—31–100 plants or colonies, widely scattered in several locations; **F** (Frequent)—101–1000 plants or colonies, easily found in numerous locations; and **A** (Abundant)—greater than 1000 plants or colonies, diagnostic or dominant species throughout many locations. An italicized voucher specimen(s) collection number by the first author in a *year-number* (e.g., *08-558*; *09-757*) format ends each taxon entry.

POLYPODIOPHYTA

Aspleniaceae

Asplenium platyneuron (L.) BSP., Ebony spleenwort; OF; O; *08-558, 09-757*

Dryopteridaceae

¤*Cystopteris bulbifera* (L.) Bernhardi, Bulblet bladder fern; OF; S; *08-651*

Cystopteris protrusa (Weath.) Blasdell, Southern bladder fern; MF; R; *08-738, 09-668*

¤*Diplazium pycnocarpon* (Spreng.) M. Broun, Narrow-leaved glade fern; MF; F; *08-566, 09-670*

Polystichum acrostichoides (Michx.) Schott, Christmas fern; MF, OF; F; *08-752*

¤*Woodsia obtusa* (Spreng.) Torr., Blunt-lobed cliff fern; OF; R; *08-868*

Ophioglossaceae

¤*Botrychium dissectum* Spreng., Cut-leaved grape fern; OF; S; *09-776*

Botrychium virginianum (L.) Sw., Rattlesnake fern; OF, MF; I; *08-285*

Pteridaceae

¤*Adiantum pedatum* L., Northern maidenhair fern; MF; S; *08-567*

Thelypteridaceae

¤*Phegopteris hexagonoptera* (Michx.) Fée, Broad beech fern; OF, MF; I; *08-650*

PINOPHYTA

Cupressaceae

†*Chamaecyparis nootkatensis* (Lamb.) Spach., Nootka cypress; CD; R; *09-14*

Juniperus virginiana L., Eastern red cedar; OF, WB; O; *08-625*

Pinaceae

†*Pinus strobus* L., Eastern white pine; OF; I; *08-766*

†*Pinus taeda* L., Loblolly pine; OF; O; *08-750, 09-678*

¤*Pinus virginiana* Mill., Virginia pine; OF, WB; O; *08-633*

MAGNOLIOPHYTA—MAGNOLIOPSIDA

Acanthaceae

¤*Ruellia caroliniensis* (J.F. Gmel.) Steud., Carolina wild petunia; WB, CD; F; *08-796*

Aceraceae

Acer negundo L., Box-elder; MF, IC; O; *08-661*

Acer nigrum F. Michx., Black maple; OF; S; *08-847*

Acer rubrum L., Red maple; OF, MF, WB; F; *08-598*

Acer saccharum Marshall, Sugar maple; MF, OF; F; *08-590*

Amaranthaceae

¤*Amaranthus spinosus* L., Spiny amaranth; CD; R; *09-677*

Anacardiaceae

Rhus copallina L., Winged sumac; WB, OF; O; *08-761*

Toxicodendron radicans (L.) Kuntze, Eastern poison-ivy; OF; MF, WB; A; *08-354*

Annonaceae

Asimina triloba (L.) Dunal, Paw-paw; MF; IC; *08-594*

Apiaceae

¤*Cryptotaenia canadensis* (L.) DC., Canada honewort; MF; F; *08-705*

¤**Daucus carota* L., Queen Anne's lace; CD; O; *08-617*

¤*Erigenia bulbosa* (Michx.) Nutt., Harbinger-of-spring; MF; F; *09-18*

¤*Osmorhiza claytonii* (Michx.) C.B. Clarke, Clayton's sweet cicely; MF; F; *08-479*

¤*Osmorhiza longistylis* (Torr.) DC., Long-styled sweet cicely; MF; I; *08-390*

¤*Sanicula canadensis* L., Canada black snakeroot; OF; I; *08-794*

¤*Sanicula trifoliata* E.P. Bicknell, Beaked snakeroot; MF, OF; O; *08-603*

¤*Zizia aurea* (L.) W.D.J. Koch, Common golden alexander; MF; S; *09-218*

Apocynaceae

¤*Apocynum cannabinum* L., Indian hemp; OF, WB; I; *08-675*

¤**Vinca minor* L., Lesser periwinkle; MF, WB, CD; A; *09-10*

Aquifoliaceae

¤*Ilex opaca* Aiton, American holly; MF; R; *09-772*

Araliaceae

¤*Aralia spinosa* L., Spiny aralia; MF; I; *08-588*

Aristolochiaceae

¤*Asarum canadense* L., Canada wild ginger; MF; F; *08-386*

Asclepiadaceae

Asclepias tuberosa L., Butterfly-weed; WB; S; *08-683*

¤*Asclepias variegata* L., Red-stem milkweed; WB; R; *08-638*

Asteraceae

¤**Achillea millefolium* L., Common yarrow; WB; S; *08-905*

¤*Ageratina altissima* (L.) R.M. King & H. Rob., White snakeroot; MF, OF, IC; A; *08-922*

¤*Ambrosia artemisiifolia* L., Annual ragweed; CD, IC; F; *08-721*

¤*Ambrosia trifida* L., Great ragweed; IC; O; *08-767*

¤*Antennaria plantaginifolia* (L.) Richardson, Plantain-leaved pussytoes; WB, OF, CD; O; *09-73*

¤*Bidens bipinnata* L., Spanish needles; CD; I; *08-834*

¤*Bidens frondosa* L., Devil's beggar-ticks; IC; I; *09-771*

¤***Carduus nutans* L. subsp. *nutans*, Nodding musk thistle; CD; I; *08-495*

¤***Chrysanthemum leucanthemum* L., Ox-eyed daisy; CD; O; *08-381*

¤***Cichorium intybus* L., Chicory; CD; I; *08-612*

¤*Cirsium discolor* (Muhl. ex Willd.) Spreng., Field thistle; OF, WB; S; *08-837*

¤**Cirsium vulgare* (Savi) Ten., Bull thistle; CD; I; *08-726*

¤*Conoclinium coelestinum* (L.) DC., Blue mistflower; OF, IC; I; *09-672*

¤*Conyza canadensis* (L.) Cronquist, Canada horseweed; CD; O; *08-833*

¤*Coreopsis major* Walter, Greater tickseed; OF; S; *08-553*

¤*Elephantopus carolinianus* Raeusch., Carolina elephant's-foot; OF, MF, WB; O; *08-835*

¤*Erechtites hieraciifolia* (L.) Raf., Fireweed; CD; O; *08-909*

¤*Erigeron annuus* (L.) Pers., Annual daisy fleabane; OF, WB; I; *08-618*

¤*Erigeron philadelphicus* L., Philadelphia fleabane; WB, CD; O; *08-270*

¤*Erigeron strigosus* Muhl. ex Willd., Prairie fleabane; WB; O; *08-465*

¤*Eurybia macrophylla* (L.) Cass., Large-leaved aster; OF; I; *08-862*

¤*Gamochaeta purpurea* (L.) Cabrera, Purple everlasting; CD; I; *08-619*

¤*Hieracium gronovii* L., Beaked hawkweed; WB; O; *08-841*

¤*Iva annua* L., Rough marsh-elder; IC; S; *09-756*

¤*Krigia biflora* (Walter) S.F. Blake, Orange dwarf dandelion; WB; I; *08-273*

¤*Krigia dandelion* (L.) Nutt., Colonial dwarf dandelion; WB; I; *08-286*

¤*Krigia virginica* (L.) Willd., Virginia dwarf-dandelion; CD; F; *08-264*

¤*Lactuca canadensis* L., Canada tall lettuce; WB; CD; I; *08-641*

¤*Lactuca floridana* (L.) Gaertn.,Woodland blue lettuce; IC; I; *08-921*
¤**Lactuca saligna* L., Willow-leaved lettuce; CD; I; *08-901*
¤*Packera anonyma* (Alph. Wood) W.A. Weber & A. Löve, Small's ragwort; WB; O; *08-379*
Packera aurea (L.) A. Löve & D. Löve, Golden ragwort; MF; I; *09-209*
¤*Packera obovata* (Muhl. ex Willd.) W.A. Weber & A. Löve, Rough-leaved groundsel; MF; S; *09-216*
¤*Prenanthes altissima* L., Tall rattlesnakeroot; R; OF; R; *09-775*
¤*Rudbeckia fulgida* Aiton, Orange coneflower; IC; S; *08-865*
¤*Rudbeckia triloba* L. var. *triloba*, Brown-eyed Susan; IC; I; *08-856*
¤*Silphium trifoliatum* L. var. *latifolium* A. Gray, Whole-leaved rosinweed; WB; S; *08-701*
¤*Solidago caesia* L., Axillary goldenrod; MF, OF; F; *08-852*
¤*Solidago canadensis* L., Canada goldenrod; CD, WB, IC; O; *08-915*
¤*Solidago gigantea* Aiton, Smooth goldenrod; MF; I; *09-686*
¤*Solidago nemoralis* Aiton, Old-field goldenrod; WB; O; *08-844*
¤*Solidago sphacelata* Raf., Autumn goldenrod; OF; I; *08-855*
¤**Sonchus asper* (L.) Hill, Prickly sow-thistle; CD; I; *08-914*
¤*Symphyotrichum cordifolium* (L.) G.L. Nesom, Common blue wood aster; MF; I; *08-931*
¤*Symphyotrichum dumosum* (L.) G.L. Nesom, Bushy aster; WB; I; *08-904*
¤*Symphyotrichum lateriflorum* (L.) A. Löve & D. Löve, Calico aster; MF, WB; F; *08-929*
¤*Symphyotrichum ontarionis* (Wieg.) G.L. Nesom, Bottomland aster; IC; S; *08-930*
¤**Taraxacum officinale* (L.) Weber, Common dandelion; CD; F; *08-501*
¤*Verbesina occidentalis* (L.) Walter, Yellow crownbeard; IC; F; *08-923*
¤*Vernonia gigantea* (Walter) Trel., Giant ironweed; WB; R; *08-867*
¤*Xanthium strumarium* L. var. *glabratum* (DC.) Cronquist, Rough cocklebur; IC; I; *08-903*

Balsaminaceae

¤*Impatiens capensis* Meerb., Orange touch-me-not; MF, IC; O; *08-854*
Impatiens pallida Nutt., Pale touch-me-not; MF; O; *08-667*

Berberidaceae

¤*Podophyllum peltatum* L., May-apple; OF, MF; F; *08-246*

Betulaceae

Carpinus caroliniana Walter, American hornbeam; MF; O; *08-461*
Ostrya virginiana (Mill.) K. Koch, Hop-hornbeam; OF; O; *08-587*

Bignoniaceae

Bignonia capreolata L., Cross-vine; MF; F; *09-07*
Campsis radicans (L.) Seem. ex Bureau, Trumpet-creeper; OF, WB; O; *08-582*
**Paulownia tomentosa* (Thunb.) Sieb. & Zucc. ex Steud., Empress tree; OF; R; *09-340*

Boraginaceae

¤*Cynoglossum virginianum* L., Wild comfrey; OF; F; *09-225*
¤*Lithospermum tuberosum* Rugel ex DC., Tuberous stoneseed; OF; I; *08-260*
¤*Myosotis macrosperma* Engelm., WB, CD; O; *08-382*

Brassicaceae

¤*Arabis laevigata* (Muhl. ex Willd.) Poir. var. *laevigata*, Smooth rockcress; OF; I; *08-410*
¤**Barbarea vulgaris* R. Br., Yellow rocket; CD; I; *08-459*
¤**Cardamine hirsuta* L., Hairy bittercress; CD; O; *09-08*
Dentaria laciniata Muhl. ex Willd., Cut-leaved toothwort; MF; R; *09-13*
Dentaria multifida Muhl., Forked-leaved toothwort; OF, WB, CD; A; *08-135, 09-71*
**Draba verna* L., Spring draba; CD; F; *09-15*
¤*Lepidium virginicum* L., Virginia pepperweed; CD; O; *08-756*
**Thlaspi alliaceum* L., Roadside pennycress; CD; R; *09-76*
***Thlaspi perfoliatum* L., Clasping-leaved pennycress; CD; I; *09-19*

Buxaceae

Pachysandra procumbens Michx., Allegheny spurge; MF; A; *09-12*

Campanulaceae

¤*Campanulastrum americanum* (L.) Small, American bellflower; MF; I; *08-703, 09-762*
¤*Lobelia inflata* L., Indian tobacco; WB, CD; O; *08-839*
Triodanis perfoliata (L.) Nieuwl. var. *perfoliata*, Clasping-leaved Venus-looking glass; CD; I; *08-497*

Caprifoliaceae

***Lonicera japonica* Thunb., Japanese honeysuckle; OF, MF, WB; F; *08-441*
¤***Lonicera maackii* (Rupr.) Herder, Amur honeysuckle; OF; S; *08-907*
Sambucus canadensis L., Common black elderberry; MF, IC; O; *08-660, 09-683*
Symphoricarpos orbiculatus Moench, Indian currant; OF; O; *08-846*
¤*Triosteum angustifolium* L., Yellow-fruited horse-gentian; OF; O; *08-261*
Viburnum acerifolium L., Maple-leaved viburnum; MF; I; *08-717*
Viburnum rufidulum Raf., Rusty black haw; OF; R; *08-666*

Caryophyllaceae

¤***Arenaria serpyllifolia* L., Thyme-leaved sandwort; CD; F; *08-266*
¤**Cerastium glomeratum* Thuill., Clammy mouse-eared chickweed; CD; I; *09-212*
¤**Cerastium vulgatum* L., Common mouse-eared chickweed; CD; F; *09-219*
¤*Paronychia canadensis* (L.) Alph. Wood, Canada smooth forked nailwort; OF; O; *08-757*
¤***Stellaria media* (L.) Vill., Common chickweed; CD; F; *08-430*
¤*Stellaria pubera* Michx., Star chickweed; MF; O; *08-394*

Celastraceae

¤***Celastrus orbiculatus* Thunb., Oriental bittersweet; OF; S; *08-898*

¤**Euonymus alatus* (Thunb.) Siebold, Winged burning bush; OF; S; *08-455*

¤*Euonymus americanus* L., Strawberry bush; OF, MF; O; *09-758*

Chenopodiaceae

¤***Chenopodium album* L. var. *album*, Lamb's-quarters; CD; S; *08-550*

Clusiaceae

Hypericum punctatum Lam., Spotted St. John's-wort; WB; I; *08-649*

¤*Hypericum stragulum* W.P. Adams & N. Robson, St. Andrew's-cross; WB; O; *08-709*

Convolvulaceae

¤*Ipomoea lacunosa* L., Whitestar morning-glory; CD; O; *08-899*

¤***Ipomoea purpurea* (L.) Roth, Tall morning-glory; CD; S; *08-861*

Cornaceae

Cornus florida L., Flowering dogwood; OF, MF; F; *08-595*

Crassulaceae

¤*Sedum ternatum* Michx., Woodland stonecrop; MF; F; *08-243*

Cuscutaceae

¤*Cuscuta pentagona* Engelm., Field dodder; IC; R; *08-893, 08-927*

Ebenaceae

Diospyros virginiana L., Common persimmon; OF, MF, WB; O; *09-202*

Ericaceae

¤*Vaccinium corymbosum* L., Highbush blueberry; WB; S; *09-770*

Euphorbiaceae

¤*Acalypha rhomboidea* Raf., Rhomboid three-seeded mercury; IC; O; *08-932*

¤*Acalypha virginica* L., Virginia three-seeded mercury; CD; O; *08-920*

¤*Croton glandulosus* L. var. *septentrionalis* Müell.Arg., Tooth-leaved croton; CD; I; *08-776*

¤*Croton monanthogynus* Michx., Prairie tea; WB; I; *08-772*

¤*Euphorbia commutata* Engelm., Tinted woodland spurge; OF; S; *08-665*

¤*Euphorbia corollata* L., Flowering spurge; WB; R; *08-710*

¤*Euphorbia maculata* L., Spotted sandmat; CD; I; *08-648*

¤*Euphorbia nutans* Lag., Eyebane spurge; CD; R; *08-758*

Fabaceae

¤***Albizia julibrissin* Durazz., Mimosa silktree; WB; S; *08-629*

¤*Amphicarpaea bracteata* (L.) Fernald, American hog peanut; MF; F; *08-925, 09-687*

Cercis canadensis L., Eastern redbud; OF,MF, WB; *08-502, 09-75*

¤*Chamaecrista nictitans* (L.) Moench, Sensitive partridge pea; WB; I; *08-840*

¤***Coronilla varia* L., Crown-vetch; CD; O; *08-910*

¤*Desmodium glabellum* (Michx.) DC., Dillenius' tick-trefoil; WB; O; *09-755*

¤*Desmodium nudiflorum* (L.) DC., Naked-flowered tick-trefoil; MF, OF; F; *08-774*

¤*Desmodium paniculatum* (L.) DC., Panicled tick-trefoil; WB, IC; I; *08-918*

¤*Desmodium pauciflorum* (Nutt.) DC., Few-flowered tick-trefoil; MF; I; *08-762*

¤*Desmodium rotundifolium* DC., Prostrate tick-trefoil; WB; I; *08-760*

Gleditsia triacanthos L., Honey locust; OF; S; *08-406*

¤***Lespedeza cuneata* (Dum.Cours.) G. Don., Sericea lespedeza; CD, IC; O; *08-645*

¤*Lespedeza intermedia* (S. Watson) Britton, Wand lespedeza; WB; R; *08-902*

¤*Lespedeza procumbens* Michx., Downy trailing lespedeza; WB; O; *08-863*

¤***Lespedeza stipulacea* Maxim., Korean clover; CD; A; *09-685*

¤***Lespedeza striata* (Thunb.) Hook. & Arn., Japanese clover; CD; A; *09-676*

¤***Medicago lupulina* L., Black medick; CD; F; *08-469*

¤***Melilotus alba* Medik., White sweet clover; CD; R; *08-631*

¤***Melilotus officinalis* (L.) Pall., Yellow sweet clover; CD; R; *08-634*

¤***Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maesen & S.M. Almeida, Kudzu; OF; O; *08-838*

Robinia pseudoacacia L., Black locust; OF, WB; O; *08-672*

¤**Trifolium campestre* Schreb., Pinnate yellow hop-clover; CD; F; *08-482*

¤**Trifolium dubium* Sibth., Little yellow hop-clover; CD;. A; *08-496*

¤**Trifolium pratense* L., Red clover; CD; F; *08-458*

¤**Trifolium repens* L., White clover; CD; A; *08-500*

Fagaceae

Fagus grandifolia Ehrh., American beech; MF, OF; A; *08-601*

Quercus alba L., White oak; OF, MF; F; *08-591*

Quercus falcata Michx., Southern red oak; OF, MF; F; *08-577*

¤*Quercus imbricaria* Michx., Shingle oak; OF; R; *08-895*

¤*Quercus muhlenbergii* Engelm., Chinkapin oak; MF, OF; F; *08-584*

¤*Quercus rubra* L., Northern red oak; MF, OF; F; *08-711*

¤*Quercus stellata* Wangenh., Post oak; OF; O; *08-684*

Quercus velutina Lam., Black oak; OF, WB; O; *08-597*

Gentianaceae

¤*Sabatia angularis* (L.) Pursh, Common rose pink; CD; R; *08-707*

Geraniaceae

¤*Geranium carolinianum* L., Carolina geranium; CD; O; *09-205*

¤*Geranium maculatum* L., Wild geranium; MF, OF; O; *08-412*

Hamamelidaceae

¤*Hamamelis virginiana* L., Virginia witch-hazel; MF; O; *08-572*

Hippocastanaceae

¤*Aesculus flava* Aiton, Yellow buckeye; MF; F; *08-575, 08-892*

Hydrangeaceae

Hydrangea arborescens L., Wild hydrangea; MF, OF; F; *08-484*

Hydrophyllaceae

¤*Hydrophyllum macrophyllum* Nutt., Large-leaved hairy waterleaf; MF; F; *08-393*

Juglandaceae

¤*Carya alba* (L.) Nutt. ex Elliott, Mockernut hickory; OF, MF; F; *08-585*

¤*Carya cordiformis* (Wangenh.) K. Koch, Bitternut hickory; MF, OF; O; *08-564*

¤*Carya glabra* (Mill.) Sweet, Pignut hickory; OF, MF; *08-754*

¤*Carya ovata* (Mill.) K. Koch, Shagbark hickory; OF, MF; F; *08-579*

Juglans nigra L., Black walnut; OF, MF; I; *08-573*

Lamiaceae

¤*Collinsonia canadensis* L., Canada richweed; MF; S; *09-764*

¤******Glechoma hederacea* L., Ground-ivy; CD; O; *08-655*

¤*****Mentha ×piperita* L., Peppermint; CD; R; *09-673*

¤*Monarda clinopodia* L., White bergamot; MF; I; *08-476*

¤*****Perilla frutescens* (L.) Britton, Perilla mint; CD; O; *08-913*

******Prunella vulgaris* L. var. *vulgaris*, Common self-heal; CD; I; *08-719*

Pycnanthemum pycnanthemoides (Leavenw.) Fernald, Southern mountain mint; WB; R; *08-858*

¤*Salvia lyrata* L., Lyre-leaved wild sage; WB, CD; O; *08-272*

¤*Scutellaria elliptica* Muhl. var. *hirsuta* (Short & R. Peter) Fernald, Hairy skullcap; OF; O; *08-451*

¤*Scutellaria nervosa* Pursh, Veiny skullcap; WB, OF; O; *08-414*

Lauraceae

Lindera benzoin (L.) Blume, Spicebush; MF; F; *09-681*

Sassafras albidum (Nutt.) Nees, Sassafras; OF, WB, MF; O; *08-592*

Loganiaceae

¤*Spigelia marilandica* L., Indian pinkroot; MF; R; *08-475*

Magnoliaceae

Liriodendron tulipifera L., Yellow-poplar; MF, OF; O; *08-467*

Malvaceae

¤*Sida spinosa* L., Prickly sida; CD; I; *08-759*

Menispermaceae

Cocculus carolinus (L.) DC., Carolina coralbeads; MF; I; *08-483*

Menispermum canadense L., Canada moonseed; MF; O; *09-769*

Moraceae

¤*****Fatoua villosa* (Thunb.) Nakai, Hairy crabweed; CD; S; *08-720, 09-675*

Morus rubra L., Red mulberry; OF, MF; O; *08-583*

Nyssaceae

Nyssa sylvatica Marsh. var. *sylvatica*, Blackgum; OF, WB, MF; F; *08-636*

Oleaceae

Fraxinus americana L., White ash; OF, MF; F; *08-576*

¤*Fraxinus pennsylvanica* Marshall var. *subintegerrima* (Vahl.) Fernald, Green ash; OM; F; I; *08-652*

Fraxinus quadrangulata Michx., Blue ash; MF; S; *09-221*

******Ligustrum sinense* Lour., Chinese privet; OF; I; *08-682*

Onagraceae

¤*Circaea lutetiana* (L.) Asch. & Magnus subsp. *canadensis* (L.) Asch. & Magnus, Broad-leaved enchanter's nightshade; MF, IC; F; *08-670*

Orobanchaceae

¤*Conopholis americana* (L.) Wallr., American cancer-root; MF; R; *08-510*

¤*Epifagus virginiana* (L.) Barton, Beech-drops; MF, OF; O; *08-896, 09-765*

Oxalidaceae

¤*Oxalis grandis* Small, Great yellow wood-sorrel; MF; O; *08-254*

¤*Oxalis stricta* L., Common yellow wood-sorrel; CD; O; *08-384*

¤*Oxalis violacea* L., Violet wood-sorrel; OF, WB; O; *08-407*

Papaveraceae

Sanguinaria canadensis L., Bloodroot; MF; F; *08-277, 09-17*

Passifloraceae

¤*Passiflora lutea* L. var. *glabriflora* Fernald, Yellow passionflower; OF; I; *08-669*

Phrymaceae

¤*Phryma leptostachya* L., American lopseed; MF, OF; F; *08-704*

Phytolaccaceae

¤*Phytolacca americana* L., American pokeweed; OF, IC; O; *08-637*

Plantaginaceae

¤*****Plantago lanceolata* L.; English plantain; CD; F; *08-463*

¤*Plantago rugelii* Decne., Blackseed plantain; CD; A; *08-586*

¤*Plantago virginica* L., Virginia plantain; CD, WB; F; *08-265*

Platanaceae

¤*Platanus occidentalis* L., American sycamore; MF; S; *08-849*

Polemoniaceae

Phlox divaricata L. var. *divaricata*, Wild blue phlox; MF; O; *08-284*

†*Phlox nivalis* Lodd. ex Sweet, Trailing phlox; CD; R; *09-74*

Polygonaceae

¤*****Polygonum aviculare* L., Prostrate knotweed; CD; I; *08-723*

¤******Polygonum caespitosum* Blume var. *longisetum* (Bruijn) Steward, Asiatic smartweed; MF, IC, CD; A; *08-771*

¤*Polygonum punctatum* Elliott, Dotted smartweed; IC; O; *08-791*

¤*Polygonum scandens* L. var. *scandens*, Climbing false buckwheat; OF; I; *09-763*

¤*Polygonum virginianum* L., Jumpseed; MF, OF; F; *09-680*

¤*****Rumex crispus* L., Curly dock; CD; S; *08-460*

Portulacaceae

¤*Claytonia virginica* L., Virginia spring beauty; MF, CD, OF; A; *08-136, 09-67*

Primulaceae

**Anagallis arvensis* L. subsp. *arvensis*, Scarlet pimpernel; CD; R; *08-493*

¤*Dodecatheon meadia* L., Eastern shooting-star; OF; S; *09-206*

Pyrolaceae

Chimaphila maculata (L.) Pursh, Spotted-wintergreen; WB; I; *08-569*

Ranunculaceae

¤*Actaea pachypoda* Elliott, White baneberry; MF; O; *08-754*

¤*Anemone virginiana* L., Tall thimbleweed; WB; S; *08-890*

¤*Anemonella thalictroides* (L.) Spach., Rue-anemone; MF; O; *08-276*

¤*Clematis virginiana* L., Virgin's-bower; IC; O; *08-784*

¤*Ranunculus hispidus* Michx. var. *hispidus*, Bristly buttercup; MF; O; *08-352*

¤*Ranunculus recurvatus* Poir., Hooked buttercup; MF; O; *08-281*

¤**Ranunculus sardous* Crantz, Hairy buttercup; CD; I; *09-217*

¤*Thalictrum clavatum* DC., Mountain meadow-rue; IC; R; *08-790*

Rhamnaceae

Frangula caroliniana (Walter) A. Gray, Carolina buckthorn; OF; O; *08-561*

Rosaceae

¤*Agrimonia pubescens* Wallr., Soft agrimony; MF; I; *08-872*

¤*Agrimonia rostellata* Wallr., Beaked agrimony; WB, OF; O; *08-859, 09-773*

¤*Crataegus intricata* Lange, Biltmore hawthorn; OF; R; *08-581*

¤***Duchesnea indica* (Andr.) Focke, Indian strawberry; CD; F; *08-470*

¤*Geum canadense* Jacq., White avens; OF, WB, MF; O; *08-700*

¤*Geum virginianum* L., Cream avens; OF;. I; *08-787*

¤*Porteranthus stipulatus* (Muhl. ex Willd.) Britton, Midwestern Indian physic; OF; I; *08-552*

Potentilla simplex Michx., Old-field cinquefoil; OF, WB; O; *08-372*

Prunus serotina Ehrh., Black cherry; OF, WB, MF; F; *08-622*

‡*Pyrus calleryana* Decne., Bradford pear; CD; R; *08-635, 09-09*

¤*Rosa carolina* L., Carolina rose; OF, WB; I; *08-580*

***Rosa multiflora* Thunb. ex Murr., Multiflora rose; OF; I; *08-351*

¤*Rosa setigera* Michx., Prairie rose; OF; R; *08-504*

¤*Rubus allegheniensis* Porter, Allegheny blackberry; MF, WB; O; *09-674*

¤*Rubus argutus* Link, Southern blackberry; WB, CD; F; *08-557*

¤*Rubus flagellaris* Willd., Northern dewberry; WB; O; *08-488*

¤*Rubus occidentalis* L., Black raspberry; OF, WB, IC; O; *09-761*

Rubiaceae

¤*Diodia teres* Walter, Rough buttonweed; WB; O; *08-753*

¤*Diodia virginiana* L., Virginia buttonweed; CD; O; *08-770*

¤*Galium aparine* L., Common cleavers; OF, MF; O; *08-480*

¤*Galium circaezans* Michx., Licorice bedstraw; OF, MF; F; *08-713*

¤*Galium pilosum* Aiton, Hairy bedstraw; OF, FW; O; *08-716*

¤*Galium triflorum* Michx., Fragrant bedstraw; MF, OF; O; *08-702*

¤*Houstonia caerulea* L., Spring azure bluets; CD; F; *08-262, 09-68*

¤*Houstonia purpurea* L., Broad-leaved bluets; OF; I; *09-229*

¤**Sherardia arvensis* L., Blue field madder; CD; O; *08-456, 09-224*

Salicaceae

¤*Salix nigra* Marsh., Black willow; IC; R; *08-663*

Sapindaceae

‡*Koelreuteria paniculata* Laxm., Golden rain-tree; CD; R; *08-611*

Saxifragaceae

¤*Heuchera americana* L., American alumroot; OF; I; *08-397*

¤*Saxifraga virginiensis* Michx., Early saxifrage; OF; S; *09-207*

Scrophulariaceae

¤*Aureolaria virginica* (L.) Pennell, Downy yellow false foxglove; WB; I; *08-714*

¤*Mimulus alatus* Aiton, Sharp-winged monkey-flower; MF; R; *09-766*

¤*Penstemon canescens* (Britton) Britton, Eastern gray beard-tongue; WB; S; *08-377*

¤*Penstemon digitalis* Nutt. ex Sims, Talus slope beard-tongue; IC; I; *08-487*

Scrophularia marilandica L., Eastern figwort; OF; I; *09-759*

**Verbascum blattaria* L., Moth mullein; CD; S; *08-505*

**Verbascum thapsus* L., Common mullein; CD; R; *08-728*

¤**Veronica arvensis* L., Corn speedwell; CD; F; *09-214*

¤**Veronica peregrina* L. subsp. *peregrina* Purslane speedwell; CD; O; *08-454*

¤**Veronica polita* Fr., Field speedwell; CD; R; *08-446*

¤**Veronica serpyllifolia* L., Thyme-leaved speedwell; CD; S; *09-223*

Simaroubaceae

¤***Ailanthus altissima* (Mill.) Swingle, Tree-of-heaven; OF; O; *08-845*

Solanaceae

¤*Physalis longifolia* Nutt., Long-leaved ground cherry; IC; R; *09-760*

Solanum carolinense L., Carolina horse-nettle; CD;. I; *08-613*

Staphyleaceae

Staphylea trifolia L., American bladdernut; MF; S; *08-851*

Tiliaceae

Tilia americana L. var. *americana*, American basswood; MF; I; *08-831*

Ulmaceae

Celtis occidentalis L., Common hackberry; OF; I; *08-589*

Ulmus alata Michx., Winged elm; OF; O; *08-403*

Ulmus rubra Muhl., Slippery red elm; OF, MF; F; *08-848*

Urticaceae

¤*Boehmeria cylindrica* (L.) Sw., False-nettle; MF; F; *08-924*

¤*Laportea canadensis* (L.) Wedd., Canada wood-nettle; MF; A; *08-718*

¤*Parietaria pensylvanica* Muhl. ex Willd., Pennsylvania pellitory; MF, OF; O; *08-555*

¤*Pumila pumila* (L.) A. Gray, Canada clearweed; MF; A; *08-934*

Verbenaceae

Verbena simplex Lehm., Narrow-leaved vervain; CD; R; *08-632*

¤*Verbena urticifolia* L., White vervain; IC; I; *08-779*

Violaceae

¤*Hybanthus concolor* (T.F. Forst.) Spreng., Green violet; MF; I; *08-668*

¤*Viola palmata* L., Palmate-lobed violet; OF, MF; O; *08-255*

¤*Viola pubescens* Aiton var. *pubescens*, Yellow violet; MF; S; *09-220*

Viola sororia Willd. var *sororia*, Common blue violet; CD, WB; A; *09-66*

¤*Viola striata* Aiton, Cream violet; MF; I; *09-213*

Vitaceae

¤*Parthenocissus quinquefolia* (L.) Planch., Virginia creeper; OF, MF; F; *08-627*

¤*Vitis aestivalis* Michx. var. *aestivalis*, Summer grape; OF, MF; O; *08-624*

¤*Vitis rotundifolia* Michx., Muscadine grape; MF, OF; F; *08-623*

Vitis vulpina L., Frost grape; MF; O; *09-230*

MAGNOLIOPHYTA—LILIOPSIDA

Agavaceae

¤*Manfreda virginica* (L.) Rose, False aloe; WB; R; *08-743*

Yucca filamentosa L., Spanish bayonet; OF; R; *09-679*

Alliaceae

¤*Allium canadense* L., Meadow garlic; IC, CD; O; *09-208*

¤**Allium vineale* L., Field garlic; CD; I; *08-503*

Amaryllidaceae

¤**Narcissus pseudonarcissus* L., Daffodil; CD; O; *09-11*

Araceae

¤*Arisaema dracontium* (L.) Schott, Green-dragon; MF; I; *08-642*

¤*Arisaema triphyllum* (L.) Schott subsp. *triphyllum*, Jack-in-the-pulpit; OF, MF; O; *08-244*

Commelinaceae

¤***Commelina communis* L., Asiatic dayflower; IC; O; *08-926*

Convallariaceae

¤*Maianthemum racemosum* (L.) Link, False Solomon's-seal; MF; O; *08-388*

¤*Polygonatum pubescens* (Willd.) Pursh, Hairy Solomon's-seal; MF; O; *08-283*

Cyperaceae

Carex albicans Willd. ex Spreng. var. *albicans*, White-tinged sedge; OF, WB; I; *08-357, 09-69*

¤*Carex albursina* Sheld., White bear sedge; MF; S; *09-240*

Carex amphibola Steud. var. *amphibola*, Eastern narrow-leaved sedge; MF, OF; F; *08-355*

¤*Carex blanda* Dewey, Eastern woodland sedge; MF, OF; F; *08-350, 09-241*

Carex cephalophora Muhl. ex Willd., Oval-leaved sedge; CD, WB; S; *08-370, 09-231*

¤*Carex communis* L.H. Bailey, Fibrous-rooted sedge; OF; O; *09-239*

Carex cumberlandensis Naczi, Kral, & Bryson, Cumberland sedge; MF, OF; F; *08-375, 09-237*

¤*Carex digitalis* Willd. var. *digitalis*, Slender woodland sedge; OF; I; *08-365*

¤*Carex frankii* Kunth, Frank's sedge; IC; R; *08-662*

¤*Carex glaucodea* Tuck., Blue sedge; OF, WB; O; *08-450, 09-233*

¤*Carex granularis* Muhl. ex Willd., Limestone meadow sedge; MF; S; *08-457, 09-234*

Carex hirsutella Mack., Fuzzy sedge; OF, WB; O; *08-376, 09-232*

Carex kraliana Naczi & Bryson, Kral's sedge: MF; O; *08-391*

¤*Carex laxiflora* Lam. var. *laxiflora*, Broad loose-flowered sedge; OF, MF; I; *09-238*

¤*Carex lurida* Wahlenb., Yellow-green sedge; IC; R; *08-437*

¤*Carex oligocarpa* Schkuhr ex Willd., Richwoods sedge; MF; I; *08-358*

Carex planispicata Naczi, Flat-spiked sedge; MF, OF; O; *08-404*

Carex rosea Schkuhr ex Willd., Rosy sedge; OF, MF; O; *08-446, 09-236*

Carex superata Naczi, Reznicek, & Ford, Willdenow's sedge; MF; R; *08-378*

¤*Carex texensis* (Torr. ex Bailey) L.H. Bailey, Texas sedge; MF; S; *09-242*

Carex willdenowii Schkur. ex Willd., Willdenow's sedge; OF; O; *08-361*

¤*Cyperus echinatus* (L.) Alph. Wood, Globe flatsedge; CD; R; *08-739*

Cyperus strigosus L., Straw-colored flatsedge; IC; S; *09-777*

¤*Kyllinga pumila* Michx., Low spikesedge; CD; R; *08-897*

Dioscoreaceae

¤***Dioscorea polystachya* Turcz., Chinese yam; IC; R; *09-682*

¤*Dioscorea villosa* L., Wild yam; MF, OF; O; *09-228*

Hyacinthaceae

¤***Ornithogalum umbellatum* L., Star-of-Bethlehem; CD; O; *08-268*

Iridaceae

¤*Iris cristata* Soland. ex Aiton, Dwarf-crested iris; MF; O; *08-509*

Sisyrinchium angustifolium Mill., Narrow-leaved blue-eyed grass; WB; I; *08-364*

Juncaceae

¤*Juncus effusus* L. var. *solutus* Fernald & Wiegand, Soft rush; IC; S; *08-658*

¤*Juncus tenuis* Willd., Path rush; CD; F; *08-610*

¤*Luzula echinata* (Small) F.J. Herm., Hedgehog wood-rush; FW, CD; F; *08-13, 08-271*

Liliaceae

¤*Erythronium americanum* Ker Gawl., Yellow trout-lily; MF; O; *09-16*

Orchidaceae

¤*Goodyera pubescens* (Willd.) R.Br., Rattlesnake-plantain; OF; R; *09-669*

¤*Spiranthes tuberosa* Raf., Little ladies'-tresses; WB; R; *08-842*

¤*Tipularia discolor* (Pursh) Nutt., Crane-fly orchid; OF; R; *08-870*

Poaceae

¤*Agrostis perennans* (Walter) Tuck., Upland bentgrass; OF, WB; O; *08-916*

¤*Andropogon virginicus* L. var. *virginicus*, Broom-sedge bluestem; WB, CD; O; *08-919*

¤*Arundinaria gigantea* (Walter) Muhl., River cane; MF; I; *08-434*

¤*Brachyelytrum erectum* (Schreb.) P. Beauv. var. *erectum*, Southern short huskgrass; OF, MF; O; *08-570*

¤**Bromus commutatus* Schrad., Meadow brome; CD; O; *08-462*

¤*Bromus pubescens* Muhl., Woodland brome; OF, MF; O; *08-436*

¤**Cynodon dactylon* (L.) Pers., Bermuda grass; CD; F; *08-646*

¤**Dactylis glomerata* L., Orchard-grass; CD; O; *08-471*

¤*Danthonia spicata* (L.) P. Beauv., Poverty oatgrass; WB, CD; A; *08-490*

¤*Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark subsp. *fasciculatum* (Torr.) Freckmann & DeLong, Hairy panicgrass; OF, WB; F; *08-473*

¤*Dichanthelium boscii* (Poir.) Gould & C.A. Clark, Bosc's panicgrass; OF, MF; F; *08-472*

¤*Dichanthelium commutatum* (Schult.) Gould var. *commutatum*, Variable panicgrass; WB; O; *08-439*

¤*Dichanthelium dichotomum* (L.) Gould var. *dichotomum*, Forked panicgrass; MF; O; *08-433*

¤*Dichanthelium laxiflorum* (Lam.) Gould, Soft-tufted panicgrass; WB, CD; OF; F; *08-368*

¤**Digitaria sanguinalis* (L.) Scop., Hairy crabgrass; CD; F; *08-732*

¤***Eleusine indica* (L.) Gaertn., Yardgrass; CD; I; *08-729*

¤*Elymus hystrix* L., Eastern bottlebrush-grass; MF; I; *08-674*

¤*Elymus villosus* Muhl., Hairy wild rye; OF; O; *08-560*

¤*Elymus virginicus* L. var. *virginicus*, Virginia wild rye; OF; S; *08-773*

¤*Eragrostis frankii* C.A. Mey. ex Steud., Sandbar lovegrass; CD; R; *08-789*

¤***Festuca arundinacea* Schreb., Tall fescue; CD; A; *08-442*

¤*Festuca subverticillata* (Pers.) E.B. Alexeev., Nodding fescue; OF; O; *08-491*

¤*Glyceria striata* (Lam.) Hitchc., Fowl mannagrass; MF; S; *09-339*

¤*Hordeum pusillum* Nutt., Little barley; CD; I; *08-366*

¤*Leersia virginica* Willd., White cutgrass; MF, OF, IC; A; *08-781*

¤***Lolium perenne* L. var. *aristatum* Willd., Italian rye-grass; CD; S; *08-464*

¤*Melica mutica* Walter, Two-flowered melic grass; OF; O; *08-258*

¤***Microstegium vimineum* (Trin.) A. Camas, Nepalese browntop; MF, IC, OF; A; *08-928*

¤*Muhlenbergia schreberi* J.F. Gmel., Nimblewill; CD; O; *08-900*

Panicum anceps Michx., Beaked panicgrass; CD; O; *08-795*

¤*Panicum flexile* (Gatt.) Scribn., Wiry panicgrass; CD; O; *08-917*

¤*Paspalum laeve* Michx., Field beadgrass; CD; O; *08-724*

¤*Paspalum pubiflorum* Rupr., Hairy-seeded beadgrass; CD; I; *08-680*

¤**Poa annua* L., Annual bluegrass; CD; F; *09-210*

¤*Poa autumnalis* Muhl. ex Elliott, Autumn bluegrass; MF; O; *08-359, 09-203*

¤***Poa compressa* L., Canada bluegrass; CD; F; *08-447*

¤***Poa pratensis* L., Kentucky bluegrass; CD; O; *08-445*

¤*Poa sylvestris* A. Gray, Woodland bluegrass; MF; O; *09-70*

¤**Secale cereale* L., Cereal rye; CD; R; *09-215*

¤*Setaria parviflora* (Poir.) Kerguélen, Knot-rooted foxtail; CD; I; *08-751*

¤**Setaria pumila* (Poir.) Roem. & Schult., Yellow foxtail; I; *08-727*

¤***Sorghum halepense* (L.) Pers., Johnson grass; S; *08-725*

¤*Sphenopholis nitida* (Biehler) Scribn., Shiny wedge-grass; OF; I; *08-247*

¤*Tridens flavus* (L.) Hitchc., Purpletop; WB; O; *08-798*

¤**Triticum aestivum* L., Common wheat; CD;. R; *08-362*

Smilacaceae

¤*Smilax bona-nox* L., Saw greenbrier; WB, OF; O; *08-438*

¤*Smilax ecirrhata* (Engelm. ex Kunth) S. Wats., Upright carrion-flower; MF; O; *08-279*

¤*Smilax glauca* Walter, Cat greenbrier; WB, OF; I; *08-498*

Smilax hispida Raf., Bristly greenbrier; MF; I; *08-657, 09-227*

Smilax rotundifolia L., Common round-leaved greenbrier; OF, MF; O; *08-763*

Trilliaceae

¤*Trillium grandiflorum* (Michx.) Salisb., Large-flowered white trillium; MF; O; *08-275*

Uvulariaceae

¤*Uvularia perfoliata* L., Perfoliate-leaved bellwort; MF; S; *09-204*

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